	Application No.	Applicant(s)
Notice of Allowability	09/722,663	FOULADI ET AL.
	Examiner	Art Unit	
	Jin-Cheng Wang	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *8/25/2006*.

2. ☒ The allowed claim(s) is/are *5-7,11,17,19-22 and 24-32*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date *5-29-03, 5-4-01, 8-22-01*

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☐ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

Reasons for Allowance

Claim 24 of the amendment dated 8/25/2006 is allowed. The following is an examiner's statement of reasons for allowance of claim 24: Nothing in the prior art anticipates or suggests, "creating texture tiles within said external texture buffer by converting a selected rectangular sub-region of pixels from a display data format to one of a plurality of texture data formats during a pixel data transfer operation of pixel data from said embedded frame buffer to said external texture buffer" in a graphics system including a main processor and a pipelined architecture graphics coprocessor having an embedded frame buffer memory, the embedded frame buffer memory instantiated on a same semiconductor chip substrate as at least a portion of a graphics processing pipeline, and an external texture buffer residing within a main memory of said graphics system, said main memory being configured on one or more semiconductor chips separate from a semiconductor chip containing said graphics processing pipeline, a pixel data copy-out process for copying pixel data from said embedded frame buffer memory to said external texture buffer wherein said copy-out process performs predetermined pixel data conversion and/or filtering operations during transferring of pixel data from said embedded frame buffer to said external texture buffer, comprising: selecting a sub-region of pixels in the embedded frame buffer as a source for a pixel data copy operation; selecting a destination in the external texture buffer in said main memory for the pixel data copy operation; and creating texture tiles within said external texture buffer by converting a selected rectangular sub-region of pixels from a display data format to one of a plurality of texture data formats during a pixel data transfer operation of pixel data from said embedded frame buffer to said external texture buffer; as set forth in the base claim 24.

Claims 5-7, 11, 25, 27-29 and 31-32 of the amendment dated 8/25/2006 are allowed. The

following is an examiner's statement of reasons for allowance of claims 5-7, 11, 25, 27-29 and

31-32: Nothing in the prior art anticipates or suggests, "selectively transfer the data to either a

display buffer area or a texture buffer area within said separate non-embedded main memory and

wherein the copy-out pipeline converts the data to a display format if the data is transferred to

the display buffer area and converts the data to a texture format if the data is transferred to the

texture buffer area" in a graphics system including a main processor, an associated graphics

system main memory and a separate graphics coprocessor chip having graphics processing

pipeline circuitry and an on-chip embedded frame buffer memory, said graphics system main

memory being separate memory that is not embedded on a same graphics coprocessor chip as

graphics processing pipeline circuitry, comprising: a programmable pixel data post-processing

copy-out pipeline that selectively converts pixel data from one image format to another during a

reading and transfer of the data from the embedded frame buffer to the separate non-embedded

main memory of said graphics system, wherein the copy-out pipeline is operable to selectively

transfer the data to either a display buffer area or a texture buffer area within said separate non-

embedded main memory and wherein the copy-out pipeline converts the data to a display format

if the data is transferred to the display buffer area and converts the data to a texture format if the

data is transferred to the texture buffer area; set forth in the base claim 25.

Claims 17, 19-22 and 30 of the amendment dated 8/25/2006 are allowed. The following

is an examiner's statement of reasons for allowance of claims 17, 19-22, 26 and 30: Nothing in

the prior art anticipates or suggests, "converting said image data from an RGB format to a YUV

display format during the copy out operation after reading out said image data from the

embedded first frame buffer and prior to writing said image data to the non-embedded second

frame buffer" in a method of reducing an amount of storage space required for storing image

data in main memory in a graphics processing system while increasing main memory bandwidth

when displaying image data from a frame buffer located in said main memory, said graphics

processing system including a graphics processing chip having an embedded first frame buffer

memory and a separate non-embedded second frame buffer in a main memory provided separate

from said graphics processing chip, comprising: storing RGB format image data in said first

embedded frame buffer on the graphics processing chip; initiating a copy out operation for

reading out said image data from the first embedded frame buffer and transferring image data to

the separate non-embedded second frame buffer located in the main memory of the graphics

processing system; converting said image data from an RGB format to a YUV display format

during the copy out operation after reading out said image data from the embedded first frame

buffer and prior to writing said image data to the non-embedded second frame buffer; and

writing the converted image data to the non-embedded second frame buffer located in the main

memory of the graphics system, wherein a total amount of memory storage space occupied by

said converted image data in said second frame buffer is less than an amount of memory storage

space occupied by said RGB format image data in said first frame buffer, and wherein main

memory bandwidth is increased when displaying image data from said second frame buffer; set

forth in the base claim 26.

Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665.

The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jcw

KEE M. TUNG
SUPERVISORY PATENT EXAMINER